remediation is conceptually different from wastewater treatment.

Applicant submits that persons working on wastewater treatment and in the field of sanitary engineering do not access as a body of common or related technology the teachings of the pollution remediation field. Applicant is unaware of any commonality of technical conferences, publications, government regulation, or other activities between the two fields. This is not surprising since many methods of remediation are wholly irrelevant to wastewater treatment, not only because of the kind of materials used, but because the common methods include incineration, vitrefication, and other process, which are wholly inimical to any bacterial process.

Applicant agrees, that as the recital of prior art in the Looney et al. patent indicate is old, that it is well known that biological processes take place within the earth in connection with certain pollutants, e.g., hydrocarbons. It is also known, as indicated by the patents cited that the bacterial process is slow and ineffective, albeit helpful; and albeit enhanced by the steps of introducing more bacteria, introducing additional nutrients for bacteria, and physically working on the pollutants so bacteria can access them. However, the character of the matter which is being biologically attacked in remediation is entirely different from the character of the matter being treated in wastewater processing (which is largely human waste, digestible foods, soaps, and the like). Thus, what to do about petroleum products and industrial solvents in remediation is not instructive of what to do with wastewater. It is in general not obvious how the remediation technology would be applied or would work..

Pollution remediation methods are one-shot deals, to restore the soil, whereafter activity is ceased. They do not teach what to do about ongoing wastewater treatment, where contaminants are being continuously or repetitively introduced.

Thus in the first instance, applicant acts for reconsideration and withdrawal of the rejection based on Basile and Aines or any other pollution remediation patent. If the examiner continues his rejection on such basis, applicant respectfully demands that the examiner cite the basis on which pollution remediation technology is a teaching, or a source of reference for persons engaged in wastewater treatment.

Amendment of claims

Without forfeiting the argument just made, applicant argues in the alternative, for the claims which have been amended. Amended independent claims 1 and 19 are narrowed, to read on conduits of a leach field, which conduits are horizontal and near the surface of the earth, and where the wastewater is introduced continuously or repetitively, as disclosed at numerous places in the specification. With the amendment, it should be clear that applicant claims do not read on the prior art.

Rejection based on 35 USC 112

Applicant has amended claim 19 which should overcome the rejection to claim 28 under 35 USC 112.

Rejection based on 35 USC 102

As to claim 1: Applicant disputes that Basile anticipates, at the cited Col. 9, line 22-26, that "waste water is flowed into a conduit ...in which zone the biochemistry of the wastewater is altered..." (applicant claim 1). Clearly, the Basile water is "Separated and decontaminated groundwater" (Col. 9, line 19-20) and the purpose is for nutrient and steam feed. It is thus not wastewater as the term is used in the field of leach field wastewater treatment and in the application.

Applicant's amended claim 1 requires horizontal conduits whereas Basile only describes vertical conduits. Thus there is no anticipation of claim 1 by Basile under 35 USC 102, because each and every element of claim 1 are not disclosed. And, all claims dependent from claim 1 are not anticipated.

Claim 2 is not anticipated because heated fluid is not flowed through a conduit through which wastewater flows.

Claim 3 is not anticipated. The cited text at Col. 10, line 34-48, describes how hot air is flowed into the vadose, but it does not say nor anticipate that the heat has anything to do with biochemical activity. Rather, the text says the purpose is to prevent condensation and thereby facilitate the removal of vapor. Col 10, line 44-48.

Claim 4. Basile describes higher temperatures than 120F, i.e. steam which everyone knows is about 220F.

Claim 5. There is no disclosure of source or use of found heat content. All heat is artificially generated.

Claim 8-11. There is no disclosure of heating elements as defined by applicant. There is no disclosure of a heating element inside the conduit, as in claim 9.

Claim 12 is disclosed, except for the matter in parent claim 1, on which basis the claim is novel.

Claim 19 is not disclosed for reason stated for claim 1. Claims dependent from claim 19, namely claims 20-26 and 28, ought not be rejected, because they obtain novelty by their dependency.

For claim 20-22 see argument for claim 8-11.

For claim 23, the argument is the same as for claim 3.

For claim 24-26, Basile does not describe air flowing through the same conduit which carries wastewater to the influence zone.

For claim 28. As amended for clarity, Basile does not describe a heat source in soil. And the claim ought to be potentially allowable, on the same basis of potentially allowable and objected-to claim 29.

Claim 17. In rejecting claim 17, Benson 5,542,208 is cited as the basis. The column 3 text cited by examiner say that a mobile air pump can be used to service "a number of greens on a golf course...or leach field." A fair reading of that text is that it is a teaching about how to treat golf greens, including golf greens on a leach field. It is the only mention of leach field in Benson. There is no indication of what a leach field comprises, where or how heated air ought to be used for such, etc. Thus, Benson's one sentence is not sufficient to anticipate any invention. It is not meaningful as a disclosure which is enabling because it is not apparent how one would carry out any action with respect to a leach field.

Thus each and every element of the rejected claims is not present in the prior art, and the 35 USC 102 rejection should be withdrawn.

Rejection based on 35 USC 103

Applicant incorporates the points made just above about the 35 USC 102 rejection, since they are also pertinent with respect to any teaching and obviousness. Applicant also incorporates the point about "non-

related field" in the "Remediation vs. Wastewater" section above.

Basile (and Aines) are concerned with deep contamination, particularly in the water table. (Obviously if it was only the top few feet which is contaminated, the soil would be removed.) Thus, the patents are not teachings about heating soil near the surface for purposes of biochemical activity, etc. They are not about flowing contaminants into the earth for treatment, and thus are not instructive of what to do about treating wastewater which is continuously flowed into the soil as in the present invention. It is only by hindsight that the present invention can be said to be obvious from the cited Basile and Aines references.

Claim 4, 6-7 and 13 are rejected based on Basile which teaches to inject steam. Obviously, steam at 220F would kill bacteria and that teaches away from the invention. There is no suggestion from Basile of any attention to temperature of the steam, or to the temperature of the hot air, which as mentioned by Basile, has the purpose of carrying away vapors. Applicant's invention involves gentle heating, as described. So, what the examiner says about routine skill is taught away from by Basile because it teaches high temperatures of the order of 220F. It will not therefore support the rejection. Applicant's specification supports unexpected results in that the small amount of heating provides substantial increase in biochemical activity and result. See page 9, second last paragraph, continuing onto page 10, and Fig. 7. The criticality in having the heating below 120F is that if the bacteria are killed, then the improved results due to heating will not be obtained, as stated in the application. Claim 13 should be allowed at least as a preferred embodiment of claim 1.

Claim 30 ought to be allowed because it is dependent from an allowable (objected to) claim, claim 29, obtaining novelty therefrom, as a preferred embodiment.

Claims 14-15 rejected based on the combination of Basile and Aines et al. ought to be allowed: First, because of what is said about Aines as a non-related field reference above. Second, t because the matter in the parent claim is not taught. Third, Aines teaches thermal treatment and destruction of microbes . See Col 2, line 65-67. Thus, it is not combinable with Basile, if Basile is said to teach using microbes. Alternately, the combination teaches toward doing away with microbiological activity and the opposite of what is claimed in claim 1. Fourth, Aines teaches thick insulation, not the membrane of amended claim 15, with its surprising result of heat retention.

Claim 18 is rejected based on the combination of Benson and Potts. While applicant agrees with what examiner says about Potts, applicant incorporates his argument above about the non-teaching of Benson, above. Thus, the combination cannot teach claim 18, notwithstanding novelty from claim 1.

Therefore, applicant respectfully requests reconsideration and allowance of the claims as amended.

Respectfully submitted,
DAVID A. POTTS

By _____
His Attorney

Charles G. Nessler
Box H
Chester, CT 06412
(860) 526 9149
fax 860 526 1043
email cn@cnessler.com

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Bo 1450, Alexandria, VA 22313-1450 on December 18, 2003

C. G. Nessler

Status of claims 12/18/2003

1. (currently amended) A method of subsurface waste water treatment within a leach field comprised of at least one conduit buried in soil near the surface of the earth, wherein waste water is continuously or repetitiously flowed into a generally horizontally running conduit and then into an aerobic influence zone in the soil, in which zone the biochemistry of the waste water is altered to become more environmentally benign, which comprises: delivering heat to the influence zone, to significantly heat the soil therewith.

2. (original) The method of claim 1 wherein the heat is delivered to the influence zone by flowing heated fluid through the conduit and then into the influence zone.

3. (original) The method of claim 2 wherein the heated fluid is air.

4. (original) The method of claim 3 wherein the temperature of the air is less than 120°F

5. (original) The method of claim 3 wherein air is drawn from a source which provides air with a found heat content; further comprising: flowing air into the conduit whenever the temperature in soil in or adjacent to the influence zone is less than the temperature of the found heat content air.

6. (original) The method of claim 1 wherein the temperature of the influence zone is raised by at least 5°F over the temperature which obtains in the absence of heating.

7. (original) The method of claim 1 wherein the heating is sufficient to maintain the influence zone at a temperature in the range 50-100°F.

8. (original) The method of claim 1 wherein heat is provided to the influence zone by imbedding at least one heating element within the soil which is within or adjacent to the influence zone.

9. (original) The method of claim 1 wherein heat is provided to the influence zone by means of a heating element within the conduit.

10. (original) The method of claim 8 wherein the heating element is in the portion of the influence zone which underlies the conduit.

11. (original) The method of claim 8 wherein in the heating element comprises a tube, further comprising: flowing a heated fluid through the heating element.

12. (original) The method of claim 1 wherein heat is provided to the influence zone by flow of heated fluid from a perforated tube buried within the soil which is within or adjacent to the influence zone.

13. (original) The method of claim 1 which further comprises: sensing the temperature in the influence zone, comparing said temperature to a reference temperature, and controlling the extent of delivering of heat according to the difference between the two temperatures.

14. (original) The method of claim 1 which further comprises: inhibiting vertically upward heat loss by insulating the soil above the conduit.

15. (currently amended) The method of claim 14 wherein a membrane laid on~~layer of material is applied to~~ the surface of soil directly above the conduits and influence zone.

16. (original) The method of claim 1 wherein a geothermal source of heat underlies the soil containing the conduit, which further comprises: transferring heat from the geothermal heat source to the influence zone.

17. (original) The method of renovating or restoring the function of a leach field which comprises: delivering heat to the influence zone, to significantly heat the soil therewith.

18. (original) The method of claim 17 which comprises temporarily ceasing the flow of waste water to the leach field, then heating the influence zone, then flowing air through the influence zone, and then resuming the flow of waste water to the leach field.

19. (currently amended) Leach field ~~A~~apparatus for treating waste water within soil which comprises:

a generally horizontally running conduit, buried near the surface of the soil, for conveying waste water into and within the soil, and for percolating waste water into an associated influence zone in the soil;

an influence zone in soil adjacent the conduit, for receiving the waste water from the conduit and for biochemically altering the waste water to make the waste water more environmentally benign; and,

means for heating the influence zone, to raise the temperature thereof and to increase biochemical activity therewithin.

20. (original) The apparatus of claim 19 wherein the means for heating comprises heating elements buried in the soil.

21. (original) The apparatus of claim 20 wherein the heating elements are tubes through which hot fluid circulates; further comprising: means for raising the temperature of hot fluid, to be circulated through the heating elements.

22. (original) The apparatus of claim 19 wherein the heating elements are within the soil of the influence zone.

23. (original) The apparatus of claim 19 wherein said means for heating comprises means for flowing heated air into the influence zone.

24. (original) The apparatus of claim 23 which further comprises: means for flowing heated air through the conduit and then into the influence zone.

25. (original) The apparatus of claim 24 wherein the means for flowing heated air comprises:

an air mover for pressurizing atmospheric air; and,

means for heating the atmospheric air.

26. (original) The apparatus of claim 25 wherein the air mover draws atmospheric air from within a building having an associated heat generating system; and, wherein said means for heating the atmospheric air comprises said associated heat generating system.

27. (original) The apparatus of claim 25 wherein the air mover is a blower and the means for heating the atmospheric air is purposeful inefficiency in operation of the blower.

28. (currently amended) The apparatus of claim 19 wherein said means for heating comprises means for transferring heat from a source of heat which is within soil spaced apart from the leach field.

29. (original) The apparatus of claim 28 wherein the source of heat is water within the earth underlying the soil.

30. (original) The apparatus of claim 29 wherein the means for transferring comprises a heat pump.

31. (original) The apparatus of claim 19 further comprising means for inhibiting vertical transfer of heat through soil above the conduit.